

Technische Universität Dresden - TRR404 “Next Generation Electronics With Active Devices in Three Dimensions [Active-3D]”



The TRR404 “Next Generation Electronics With Active Devices in Three Dimensions [Active-3D]” is a Collaborative Research Center/Transregio between TUD Dresden University of Technology and Rheinisch-Westfälische Technische Hochschule Aachen (RWTH Aachen) funded by Deutsche Forschungsgemeinschaft. The TRR aims at exploring a completely new approach for microelectronics technology and therefore teams up materialists, electrical engineers, and computer scientists of TUD, RWTH Aachen and Gesellschaft für Angewandte Mikro- und Optoelektronik mbH (AMO) in Aachen, Forschungszentrum Jülich (FZJ), Max Planck Institute of Microstructure Physics Halle (MPI-MSP), Nanoelectronic Materials Laboratory gGmbH (NaMLab) in Dresden, Ruhr-Universität Bochum (RUB). For the initial funding phase (April 2025 – December 2028), the TRR404 offers several PhD and Postdoc positions with starting dates from April 1, 2025 onwards. All vacancies can be found here: <https://cfaed.tu-dresden.de/trr-vacancies>. For TUD diversity is an essential feature and a quality criterion of an excellent university. Accordingly, we welcome all applicants who would like to commit themselves, their achievements and productivity to the success of the whole institution.

Research Associate (m/f/x)

(subject to personal qualification, employees are remunerated according to salary group E 13 TV-L) At TUD the TRR404 offers, subject to the availability of resources, a full-time position as Research Associate (m/f/x) starting January 1, 2027. The position is limited to 24 months with the option of extension subject to further projects. The period of employment is governed by the Fixed Term Research Contracts Act (Wissenschaftszeitvertragsgesetz - WissZeitVG). The position offers the chance to obtain further academic qualification. Balancing family and career is an important issue. The position is generally suitable for candidates seeking part-time employment. Please indicate your request in your application. Position#5: TRR404-TUD-B06 Project: B06 System Models, Architectures, and Application Mapping Tools Project Leader: Prof. Jeronimo Castrillon (Chair of Compiler Construction) Tasks: The PhD student will be mostly in charge of modeling operations of emerging computing architectures, designing compiler abstractions, and working towards a programming framework for the 3D systems.

City: Dresden; Starting date (earliest): 01/01/27; Duration: The position is limited to 24 months with the option of extension subject to further projects.; Remuneration: subject to personal qualification, employees are remunerated according to salary group E 13 TV-L; Reference number: w26-266; Closing date: 30/10/26

Tasks

The PhD student will be mostly in charge of modeling operations of emerging computing architectures, designing compiler abstractions, and working towards a programming framework for the 3D systems.

Requirements

- excellent university degree (Master/ diploma or equivalent) in computer science, mathematics, electrical engineering or a relevant area
- sound knowledge in C/C++ software development, experience in compilers (LLVM, MLIR) and automatic code optimization, knowledgeable in computer architecture
- above-average degree achieved in short study period
- willingness and ability to think beyond the boundaries of your field, to act in an international and diverse environment and to live an open and constructive communication
- strong analytic and problem-solving skills, creativity
- an independent, target- and solution-driven work attitude
- fluency in English, knowledge of German would be a plus

What we offer

A varied and challenging research task, embedded in a friendly, inclusive and supportive team of the TRR's Principal Investigators (i.e., project leaders and supervisors). We maintain an open and cooperative work attitude with maximum personal responsibility, mutual support with a solution-oriented approach, and flexible working hours where possible. As a PhD student you will be integrated in the TRR's Graduate School as well as becoming a member of the TUD' Graduate Academy. Both will offer tailored educational programs and individual supervision agreements.

In addition, TUD offers:

- employment in accordance with the provisions of the collective agreement for the public service of the Länder (TV-L)
- an individual assignment of the collective agreement experience level taking into account your previous professional experience
- 30 days annual vacation (based on a 5-day workweek) and annual bonus payment (restrictions apply)
- additional pension scheme (VBL)
- very good accessibility by public transport
- car parking facilities
- state-of-the-art buildings with labs equipped to a high technical standard
- a wide range of offers for health promotion and for the compatibility of family and career
- numerous opportunities for further training, including language courses, IT courses and other courses

Application

TUD strives to employ more women in academia and research. We therefore expressly encourage women to apply. The university is a family-friendly university. We welcome applications from candidates with disabilities. If multiple candidates prove to be equally qualified, those with disabilities or with equivalent status pursuant to the German Social Code IX (SGB IX) will receive priority for employment.

Application: Please submit your detailed application with the usual documents including a motivation letter, CV, copy of degree certificate, transcript of grades (i.e., the official list of coursework including your grades) and proof of English language skills, by October 30,

2026 (stamped arrival date of the university central mail service or the time stamp on the email server of TUD applies), preferably via the TUD SecureMail Portal <https://securemail.tu-dresden.de> by sending it as a single pdf file quoting the reference number TRR404-TUD-B06 in the subject header to jeronimo.castrillon@tu-dresden.de or to:

TU Dresden, Chair of Compiler Construction, Prof. Jerónimo Castrillón, Helmholtzstr. 10, 01069 Dresden, Germany.

Please submit copies only, as your application will not be returned to you. Expenses incurred in attending interviews cannot be reimbursed.

TUD is a founding partner in the DRESDEN-concept alliance.

Reference to data protection: Your data protection rights, the purpose for which your data will be processed, as well as further information about data protection is available to you on the website:

<https://tu-dresden.de/karriere/datenschutzhinweis>.

More information at <https://stellenticket.de/207959/TUBS/>

Offer visible until 30/10/26

